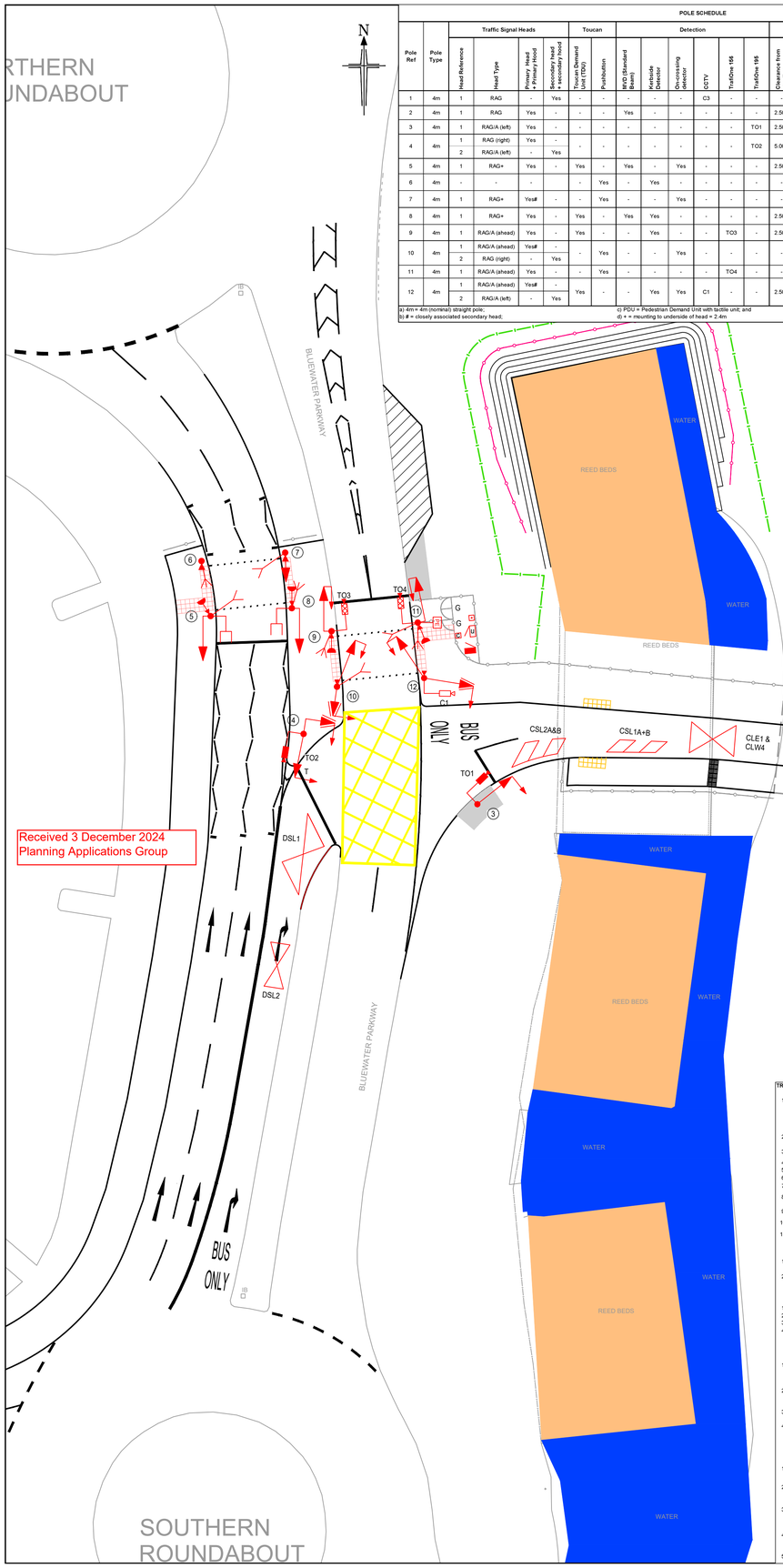
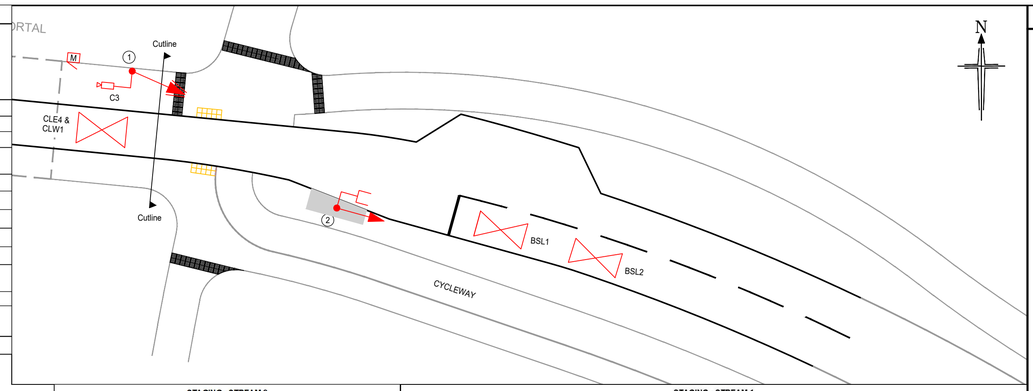
POLE SCHEDULE

Pole Ref	Pole Type	Traffic Signal Heads: Head Reference	Traffic Signal Heads: Head Type	Traffic Signal Heads: Primary Head + Primary Hood	Traffic Signal Heads: Secondary head + secondary hood	Toucan: Toucan Demand Unit (TDU)	Toucan: Pushbutton	Detection: BVD (Standard Video)	Detection: Kerbside Detector	Detection: On-crossing detector	Detection: CCTV	Detection: TrafiOne 156	Detection: TrafiOne 195	Pole Setting Out: Clearance from Kerbline	Pole Setting Out: Clearance from Back	Pole Setting Out: Clearance from Kerb Face	Comments
1	4m	1	RAG	-	Yes	-	-	-	-	-	C3	-	-	-	-	-	Pole at back of footway
2	4m	1	RAG	Yes	-	-	-	Yes	-	-	-	-	-	2.50m	-	0.75m	
3	4m	1	RAG/A (left)	Yes	-	-	-	-	-	-	-	-	TO1	2.50m	-	0.75m	
4	4m	1	RAG (right)	Yes	-	-	-	-	-	-	-	-	TO2	5.00m	-	-	Pole located with 1.40m clearance from both kerbs
		2	RAG/A (left)	-	Yes												
5	4m	1	RAG+	Yes	-	Yes	-	Yes	-	Yes	-	-	-	2.50m	0.50m	0.50m	Head side mounted
6	4m	-	-	-		-	Yes	-	Yes	-	-	-	-	-	0.50m	0.50m	Head side mounted
7	4m	1	RAG+	Yes#	-	-	Yes	-	-	Yes	-	-	-	-	0.50m	0.75m	
8	4m	1	RAG+	Yes	-	Yes	-	Yes	Yes	-	-	-	-	2.50m	0.50m	0.50m	Head side mounted
9	4m	1	RAG/A (ahead)	Yes	-	Yes	-	-	Yes	-	-	TO3	-	2.50m	0.50m	0.50m	
10	4m	1	RAG/A (ahead)	Yes#	-	-	Yes	-	-	Yes	-	-	-	-	0.50m	0.75m	
		2	RAG (right)	-	Yes												
11	4m	1	RAG/A (ahead)	Yes	-	-	Yes	-	-	-	-	TO4	-	-	0.50m	0.75m	Head side mounted
12	4m	1	RAG/A (ahead)	Yes#	-	Yes	-	-	Yes	Yes	C1	-	-	2.50m	0.50m	0.50m	
		2	RAG/A (left)	-	Yes												

a) 4m = 4m (nominal) straight pole;
b) # = closely associated secondary head;
c) PDU = Pedestrian Demand Unit with tactile unit; and
d) + = mounting to underside of head = 2.4m





STAGING - STREAM 2

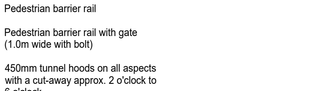
Stage 10	Stage 11	Stage 12
F	G	All RED Dummy L

STAGING - STREAM 1

STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
A	E	A B	A Dummy H	E C

STAGE 6	STAGE 7	STAGE 8 (Special All Red)	STAGE 9 All Red
E D	A Dummy I	Dummy J	Dummy K

Staging Strategy



CROSSING SCHEDULE

Crossing Ref	Phase	Type	Description	Width	Number of Tactile Blocks
1	E	Toucan	Across Bluewater southbound	4.00m	10
2	G	Toucan	Across Bluewater northbound	4.00m	10

Notes:
1) Tactile paving 400mm x 400mm square and coloured red

TRAFFIC SIGNAL NOTES

General

1 The site is a new ELV installation with two streams both running VA:
  a) Stream 1: the junction of Bluewater Parkway southbound with a bus only shuttle running through a tunnel with a parallel Toucan crossing; and
  b) Stream 2: a standard Toucan on Bluewater parkway northbound.
2 Controller, UPS, Miscellaneous Equipment Cabinet (MEC), communications pillar, electricity supply pillar and all pole and loop locations to be agreed with a Kent County Council (KCC) traffic signal engineer before associated installation works commence.
3 The alignment of the Toucan Demand Units (TDUs) and pushbuttons shall be agreed on site with a KCC traffic signal engineer . Tactile cones to be fitted in all TDUs and pushbuttons but audible devices are not utilised.
4 Any Toucan demands input in the verges shall be forwarded to the other crossing when the demanded stage gets right of way.
5 Every pole shall be separately cabled from the controller.
6 The controller and MEC base shall be a NAL 'cabinet style' appropriate for the controller type.
7 No signal equipment shall be installed with less than 450mm clearance from the kerbface.
8 The controller, UPS, power pillar and communications pillar are protected by pedestrian barrier with 1.00m gates (with bolts) to facilitate access. The bolts shall be capable of being locked by a padlock of a type agreed with KCC.
9 Pedestrian barrier is provided along the back of the maintenance parking bay to protect maintenance personnel from the risk of falling into water.
10 Poles, controller cabinet, controller NAL base, UPS, power pillar and communications pillar shall be finished grey.
11 All traffic signal equipment and works shall be in accordance with KCC traffic signal systems general specification and relevant KCC standard details including KCC-HTW-400-02 (pedestrian guardrail) and KCC-HTW-1200-012 (feeder pillars).

Bus Detection

1 In order to provide a resilient solution Phase B, C and D bus detection comprises two loops and one above ground detector. The first two detectors to fail shall fail inactive but the third shall fail active.
2 Clearance detection through the tunnel utilises four loops which are cloned to provide eastbound and westbound clearance. Clearance loops shall fail active.

UPS

1 The UPS shall provide 24 hours minimum back up for traffic signal operation.
2 When the power supply fails the UPS shall provide an output to the controller so that the power failure shall be reported via UTC.
3 The UPS shall have a generator input.
4 All necessary cabling between the power pillar and UPS and UPS and controller shall be supplied and installed.

UTC

1 The site shall be connected to UTC to provide monitoring and fault reporting plus reporting of power failure. In addition, in the event of the tunnel being closed for any reason (e.g. broken down bus) it shall be possible to send a special bit to the site so that all Stages except Stages 1 and 2 are inhibited, i.e. the controller cycles between Stage 1 and 2 according to Toucan demands (this facility shall also be implementable from the manual panel).
2 The controller shall incorporate a UTMC UG405 compliant IP addressable OTU fully compatible with the existing Kent County Council Dynniq UTC Instation, or by prior agreement with KCC, an integral OTU may be utilised. The KCC Traffic Systems Engineer shall set up the instation and supply all necessary configuration / RAM data necessary for commissioning the site onto the KCC UTC system.
3 A 'BT FTTC VDSL (Fibre to Cabinet DSL) Broadband connection with static IP address' shall be terminated in an NTE5 termination unit (provided by the service provider) on the plywood mounting board within the communications pillar. This connection shall be provided by others.
4 The traffic signal contractor shall:
  a) Supply and install a DrayTek Vigor 2862LN Modem/Router in the controller; and
  b) Supply and install all necessary wiring between the communication pillar and the DrayTek Vigor Modem/Router.

CCTV

1 CCTV cameras shall be provided at three locations as shown with one in the tunnel fixed to the tunnel wall and the other two mounted on 1.0m brackets on Poles 1 and 12.
2 At each location the camera equipment shall comprise a Dallmeier DDZ5232HD Outdoor PTZ Camera. All suitable cabling to connect the camera to power supply and network interface plus all associated power supply units, fixing brackets, conduit in the tunnel and any other items required to bring the system into operation shall be provided.
3 Camera mounting height on Poles 1 and 12 is lower than normal so the cameras can see into the tunnel. Camera 2 is installed in the tunnel and shall be fixed on the tunnel wall using an appropriate bracket. The mounting height of this camera in the tunnel shall be agreed on site.
4 Camera C3 is at the eastern tunnel portal and because of the distance from the controller Ethernet over copper communications shall be provided to a remote MEC and Camera C3 shall be connected to the MEC using an appropriate cable. A power supply shall be provided from the controller to the MEC (so benefitting from the UPS) and all necessary equipment to support Ethernet over copper communications shall be provided in the MEC and controller.
5 The CCTV cameras shall utilise the communications to the Kent County Council Highway Management Centre provided for the traffic signal controller.

KEY:

- Primary RAG signal head
- Primary RAG signal head, head side mounted
- Primary RAG/A ahead signal head
- Secondary RAG signal head
- Secondary RAG/A ahead signal head
- 4m (nominal) signal pole, straight
- (6) Pole numbering
- TO3 — TrafiOne 156 on 1.0m extension bracket on signal pole and reference
- TO2 — TrafiOne 195 on 1.0m extension bracket on signal pole and reference
- C3 — CCTV camera on 1.0m extension bracket on signal pole and reference
- C2 — CCTV camera on wall mounted bracket in tunnel and reference
- MVD
- On crossing detector
- Kerbside detector
- Pedestrian Demand Unit (PDU)
- Pushbutton
- PE — Photo Electric Cell
- Hardstanding
- Maintenance vehicle parking bay
- Proposed chain link fence
- Pedestrian barrier rail
- G — Pedestrian barrier rail with gate (1.0m wide with bolt)
- T — 450mm tunnel hoods on all aspects with a cut-away approx. 2 o'clock to 6 o'clock
- CSL1A&B — Unidirectional chevron loop and reference
- BSL2 — Bowtie loop and reference
- Controller on NAL base
- U — UPS
- M — Miscellanious equipment cabinet (controller cabinet) on a NAL base.
- Power pillar
- Communications pillar

RESIDUAL HAZARD	SUGGESTED CONTROL MEASURE

SIGNIFICANT RESIDUAL HAZARDS

NOTE: The above hazards do not include every hazard or assumption, but identify significant residual construction hazards that are not likely to be obvious to a competent contractor and those that could be difficult to manage effectively. Refer also to the designer's risk documentation.

DO NOT SCALE FROM THIS DRAWING

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE
2. ALL LEVELS ARE IN METRES AOD UNLESS NOTED OTHERWISE.
3. THIS DRAWING CONTAINS THE FOLLOWING REFERENCES:
   X-TOPO - IRC
   X-LAYOUT

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Planning Applications Group

REV.	BY	CHK'D	APP'D	DATE	DESCRIPTION
P02	MM	IR	IR	04/08/21	ADDITIONAL FEEDBACK INCLUDED

CODE	DRAWING STATUS
S3	FOR REVIEW/COMMENT

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KENT COUNTY COUNCIL

BEAN TUNNEL
LIMETREE AVENUE

HIGHWAYS
TRAFFIC SIGNAL
PLAN LAYOUT

DRAWING. No.
BRT-TG-XX-ZZ-DR-TS-1251

DRAWN : MM	DESIGNED : IR	REVISION
SCALE : 1:250	ORIGINAL SIZE : A1	P02